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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/591,257  
Filing Date: August 31, 2006  
Appellant(s): INGO ET AL.

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Peter L. Olson  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 03/30/2010 appealing from the final Office action mailed 11/23/2009.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

1-16.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

#### **WITHDRAWN REJECTIONS**

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. Claims 1, 4, 5, 7-9, 11, 13 & 16 rejected under 35 U.S.C. 102(b) as being anticipated by Dreve (US 5,853,774) are withdrawn.

#### **(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

#### **(8) Evidence Relied Upon**

6,315,164	Muhlbauer et al.	11-2001
5,853,774	Dreve	12-1998

#### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muhlbauer et al. (US 6,315,164) and further in view of Dreve (US 5,853,774).

Regarding Claim 1, Muhlbauer et al. disclose an apparatus for generating a multi-component compound (Abstract), in particular for dental purposes, comprising:

- at least two cartridges (C4/L6 & Fig. 1 (5)), each cartridge adapted for containing a component ("pressing its components", Abstract) of the multi-component compound and having a plunger (C4/L6-24; also see C4/L10, e.g., stamps & Fig. 1 (11)) adapted for pressing out its component from the cartridge; and
- a driving device for said plungers in which the driving speed is adjustable (see "regulating the advance speed...", C2/L37-59), wherein the driving device comprises a motor (C4/L34 & Fig. 1 (22)), and a detector (e.g., electronic unit, C4/L50 & Fig. 1 (30)) associated with the motor for detecting the load on the stepping motor (C2/L47-48).

However, Muhlbauer et al. fail to disclose the status of load by the step frequency of the stepping motor.

Dreve discloses an apparatus for generating a multi-component compound (Abstract), in particular for dental purposes, comprising:

- at least two cartridges (C2/L13), each cartridge adapted for containing a component (e.g., pasty mass, C1/L49) of the multi-component compound and having a plunger (e.g., pistons, C4/L29 & Fig. 5 (2)) adapted for pressing out its component from the cartridge; and

- a driving device (e.g., electric motor, C2/L24) for said plungers in which the driving speed is adjustable ("...speed adjustment can itself be ...stepped", C2/L26-27), wherein the driving device comprises a stepping motor (see "stepped", C2/L24-25), and a detector (e.g., limit switch, C2/L29 & Fig. 5 (44)) associated with the stepping motor for detecting the load on the stepping motor ("...prevents over-loading of the drive...", C2/L29-30).

Muhlbauer et al. and Dreve are analogous because these references are directed to an apparatus for generating a multi-component compound (Abstracts).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a stepping motor, as taught by Dreve, to a multi-component compound with a motor, as taught by Muhlbauer et al., since it is known in the art that a stepping motor is used in mixing very viscous materials, as disclosed by Dreve (C2/L27-29).

Regarding Claims 2-6, modified Muhlbauer et al. disclose an apparatus wherein:

- the detector detects the status of load by the step frequency of the stepping motor (C2/L37-42);
- the detector detects the increase of load by a change or loss of driving steps of the stepping motor (Claims 1 & 2);
- the driving device is adapted to drive the stepping motor at a predetermined constant speed (Claims 1 & 2);

- the driving device is adapted to drive the stepping motor at different predetermined essentially constant speeds for one or different components and compounds (Claim 1);
- a predetermined speed of the stepping motor is essentially constant when the stepping motor is under load and at a higher speed in the absence of load (P5/L24-32).

Regarding Claim 7, modified Muhlbauer et al. disclose the recited limitations since the specification of the instant application states that a stepping motor has high torque at low speed ([0027]); therefore a stepping motor inherently has the recited limitations.

Regarding Claims 8-12 & 16, modified Muhlbauer et al. further disclose an apparatus wherein:

- an output shaft (e.g., threaded spindle, C4/L15 & Fig. 1 (14)) of the stepping motor is connected via a belt (C4/L27-28); or via wheels (e.g., annular discs, C4/L29) to each device (see Fig. 1) for moving the plunger;
- the driving device is adapted to monitor the position of the plungers (Claim 3);
- the driving device is adapted to monitor the position of the plungers by monitoring the driving steps of the stepping motor (Claim 3);

- the driving device is adapted to detect and monitor an empty position of a plunger when said respective cartridge is empty (Claim 4);
- the driving device is adapted to detect when the plungers contact the components after inserting the cartridges (Claim 2); and
- comprising a mixer (e.g., mixer nozzle, C3/L63 & Fig. 1 (10)).

Regarding Claim 13, Muhlbauer et al. disclose a method for generating a multi-component compound (Abstract), in particular for dental purposes by pressing out and mixing its components ("pressing its components", Abstract) from at least two cartridges (C4/L6 & Fig. 1 (5)) by driving plungers (C4/L6-24; also see C4/L10, e.g., stamps & Fig. 1 (11)) inside the cartridges by means of a driving device in which the driving speed is adjustable (see "regulating the advance speed...", C2/L37-59), wherein a motor (C4/L34 & Fig. 1 (22)) for driving the plungers is provided.

However, Muhlbauer et al. fail to disclose the status of load by the step frequency of the stepping motor.

Dreve discloses a method for generating a multi-component compound (Abstract), in particular for dental purposes by pressing out and mixing its components (e.g., pasty mass, C1/L49) from at least two cartridges (C2/L13) by driving plungers (e.g., pistons, C4/L29 & Fig. 5 (2)) inside the cartridges by means of a driving device in which the driving speed is adjustable ("...speed adjustment can itself be ... stepped",



C2/L26-27), wherein a stepping motor (see "stepped", C2/L24-25) for driving the plungers is provided.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a stepping motor, as taught by Dreve, to a multi-component compound with a motor, as taught by Muhlbauer et al., since it is known in the art that a stepping motor is used in mixing very viscous materials, as disclosed by Dreve (C2/L27-29).

Regarding Claims 14 & 15, modified Muhlbauer et al. further discloses a method comprising the steps that:

- the plungers are advanced with high speed into an initial position in which they get in contact with the components (Claim 2);
- the plungers are retracted with high speed for a predetermined relief distance (C5/L18-21);
- the plungers are advanced with high speed either for a predetermined bias distance greater than the relief distance, or until the components begin flowing out of the cartridges or into the mixer ("rapid movement", C5/L11-18);
- the plungers are driven with low speed for pressing out the components from the cartridges (P5/L24-32); and
- during driving the plungers with low speed for pressing out the components from the cartridges, the pressing force or load of the stepping

motor is monitored and compared with a predetermined upper limit (see measuring and comparing to a predetermined valves, C4/L50-C5/L3);

- if the upper limit is reached or exceeded, the stepping motor is stopped or adjusted to a lower speed (C5/L4-10).

#### **(10) Response to Argument**

A. Appellant argues that Dreve fails to disclose a stepping motor. In addition, Appellant asserts Dreve's motor differs from a stepping motor as the term used with respect to the present invention.

First, the claimed element is a stepping motor in which the driving speed is adjustable. Dreve discloses a controllable electric motor which can be operated in stepped manner with preselectable speed to displace a very viscous mass (C2/L24-27). That is, the prior art element performs the function specified in the claim in substantially the same manner as the function performed by the corresponding element described in the claim. Further, the prior art teaches the structure, i.e., motor, as it is being claimed. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the controllable motor in stepped manner, as taught by Dreve, to a multi-component compound with a motor, as taught by Muhlbauer et al., since it is known in the art that a stepping motor is used in mixing very viscous materials, as disclosed by Dreve (C2/L27-29).

Second, as noted by the Appellant, a DC motor is used by Dreve and an evidential reference which was submitted with prior Office action dated 05/12/2009, discloses a DC motor can function as a "step" motor, see Farrell et al. (US

5,788,927), C35/L22-34. Hence, DC motor is known to be used as a step motor.

Since the appellant asserts that a term has a meaning that conflicts with the term's art-accepted meaning, the claim should contain every elements required to better reflect what appellant intends to claim as the invention.

- B. Appellant argues that Dreve fails to teach a detector associated with the stepping motor for detecting the load on the stepping motor. Appellant further asserts that Dreve discloses no more than a position sensor to detect the operational range.

Dreve teaches a limit switch which prevents over-loading of the motor drive by opening the circuit to de-energize the motor. This occurs when the yoke engages the limit switch in the end position of the of the pistons are reached (C2/L29-30 & C4/L56-58). The teachings of the limit switch (detector) associated with the motor where the limit switch is engaged (loaded) by the yoke/motor pressing on the switch to prevent over-loading of the motor is shown with sufficient specificity.

- C. Appellant's argument regarding combination of the references because Muhlbauer et al. is believed to seek a constant advance speeds whereas Dreve discloses a variable speed control.

In response to appellant's argument that there is no teaching, suggestion, or motivation to combine the references, the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071,

5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In this case, Muhlbauer et al. disclose that the advance speed can be constantly regulated and varied, see C2/L22-32. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the controllable motor in stepped manner, as taught by Dreve, to a multi-component compound with a motor, as taught by Muhlbauer et al., since it is known in the art that a stepping motor is used in mixing very viscous materials, as disclosed by Dreve (C2/L27-29).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Dean Kwak/  
Examiner, Art Unit 1797

/Jill Warden/  
Supervisory Patent Examiner, Art Unit 1797

Conferees:

/Jill Warden/  
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